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CENTRAL FAX CENTERMAY 07 2009  
PF040024**Listing and Amendments to the Claims**

1. (currently amended) Imager sequential illumination system comprising:
- a source emitting towards the imager a polychromatic light beam in a fixed wavelength ~~region range~~ comprising at least three primary colors,
  - a ~~device~~ color wheel for scrolling colored segments comprising at least three transmissive or reflective fixed segments, the color wheel scrolling device making it possible to scroll the fixed segments over the optical path of the polychromatic light beam so that they successively ~~out transmit and filter the direction of propagation of the polychromatic~~ light beam in the case where the fixed segments are transmissive, or so that they successively reflect and filter the polychromatic light beam in the case where the fixed segments are reflective, the fixed segments being of different colors, and each fixed segment having a hue, a saturation, a transmissivity or a reflectivity, and a size that is suitable for obtaining a colored beam exhibiting a primary color with a reference hue when this fixed segment it is scrolled over the optical path of the polychromatic light beam,
- wherein the fixed colored segments are distributed in the color wheel scrolling device in an order such that the differences of energies between any two successive colored beams that follow one another, when the fixed segments of the colored wheel scroll over the optical path of the polychromatic light beam, are the least variable possible compared to other possible orders, the energies being defined as perceived by the visual system of a standard observer.
2. (currently amended) The illumination system according to claim Claim 1, wherein the fixed colored segments are distributed in an order such that the sum of the differences of energies between any two successive colored beams is minimized.
3. (currently amended) The illumination system according to claim Claim 2, wherein the ~~scrolling device~~ color wheel comprises several fixed segments of like color so as to reduce the

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mean differences of excitation energies by distributing them over several intersegment transitions.

4. (currently amended) The illumination system according to ~~claim~~ Claim 3, wherein the ~~scrolling device~~ color wheel comprises a different number of fixed segments of primary or recomponded colors so as to reduce the mean differences of excitation energies by distributing them over several intersegment transitions.

5. (currently amended) The illumination system according to ~~claim~~ Claim 1, wherein the ~~device for scrolling colored segments comprises a~~ color wheel ~~is comprising at least three transmissive or reflective segments, the wheel being~~ mounted on means of rotation so as to scroll the fixed segments over the optical path of the polychromatic light beam.

6. (currently amended) Method of design of a color wheel for an imager color sequential illumination system, comprising

the step of providing the color wheel having at least three transmissive and/or reflective fixed segments that are suitable for obtaining successive beams of different colors when the fixed segments scroll sequentially through a zone of transmission of an illumination beam having a fixed wavelength distribution, the fixed segments being of different or identical colors, each segment having a hue, a saturation, a transmissivity or a reflectivity, and a size that is suitable for obtaining a colored beam exhibiting a reference hue when it crosses the zone of transmission of the illumination beam,

a step of measuring the excitation energies of each colored beam induced by the various segments in the visual system of an observer, and

a step of distributing the fixed colored segments over the color wheel in an order such that the differences of measured excitation energies between any two successive colored beams that follow one another, when the fixed segments scroll in the order through the transmission zone, are the least variable possible.

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7. (currently amended) The method according to claim Claim 6, wherein for a color wheel furnished with a determined number of fixed segments each having a determined dimension and making it possible to obtain a determined global color temperature, the distributing of the fixed segments over the wheel is carried out in such a way that the sum of the differences of energies between any two successive colored beams is the lowest possible.

8. (currently amended) Device of fixed colored segments comprising a plurality of juxtaposed zones of different colors making it possible to provide beams of different colors, by an illumination beam having a fixed wavelength distribution of the various zones, beams of different colors, wherein the fixed zones of different colors are arranged in an order such that when they are successively illuminated according to the order, the differences of energies between any two successive colored beams that follow one another, when the illumination passes from one fixed zone to another next fixed zone in said order, are the least variable possible, the energies being defined as perceived by the visual system of a standard observer.

9. (currently amended) The device of colored segments according to claim Claim 8, wherein the zones of different colors are arranged in an order such that the sum of the differences of energies between any two successive colored beams is the lowest possible.

10. (currently amended) The device of colored segments according to claim Claim 8, wherein it comprises a color wheel.